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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/020,352

12/12/2001

Tongbi Jiang

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4294

99-0829.01

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07/23/2004

EXAMINER

TRINH, MINH N

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ART UNIT

PAPER NUMBER

3729

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/020,352

Applicant(s)

JIANG ET AL.

Examiner

Minh Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/12/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The specification is objected to because the related application has already matured into a patent, therefore after "filed July 31, 2000" (in the specification, insertion A1, page 1, line 2) should be added: --, now Patent 6,388,199, issued May 14, 2002--.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 19-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following are examples:

- a) "the surface tension"(claim 19, line 5) lacks proper antecedent basis.
- b) "wherein act (a) comprises providing "(claim 20, line 1) should be: -- wherein the substrate is --.
- c) "wherein act (c) comprises "(claims 21-29), line 1) should be: -- wherein step c) further comprises--.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19-26 and 29 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al (6,048,755).

Jiang et al disclose a method of manufacturing an integrated circuit package comprising: providing a substrate 56 having a first surface and a second surface, the second surface configured to receive a plurality of solder balls 88 thereon (see Fig. 7, and abstract, lines 1-13); disposing a solder resist 80B onto the second surface of the substrate 56 (see Fig. 7); disposing a molding compound 90 on the second portion of the solder resist, and disposing an integrated circuit die 16 on the first surface of the substrate 56 (see Figs. 6B-7). Jiang et al however is silent about the raising the surface tension of the solder resist to create a first portion of the solder resist having a first surface tension and a second portion of the solder resist having a second surface tension higher than the first surface tension. Regarding to this, it would have been an obvious matter of design choice to select any desired first and second tension including that as described above since applicant has not disclosed that these features are critical, patentably distinguishing features and it appears that the invention would perform equally well with the conventional configuration tension surface as disclosed by the prior art reference (see Figs. 6-7, and the discussed at bottom of col.6 of Jiang et al.

As applied to claims 20, it is inherent to have a substrate in form of a board on chip substrate. Furthermore, It would have been obvious to one having ordinary skill in the art at the time the invention was made to select a board on chip (BOC) as an associated substrate, since it has been held to be within the general skill of a worker in

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the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

As applied to claims 21-26, exposing the second portion of the solder resist by utilizing with ultraviolet energy or plasma etching, wet chemical and radiation etchings are known in the art. Therefore, it would have been obvious to one ordinary having skill in the art at the time the invention was made to employ the teaching as described above onto the method invention of Jiang et al in order to facilitate the fabrication process by using the available techniques. Furthermore, It would have been an obvious matter of design choice to select any etching techniques including that as described above since applicant has not disclosed that these associated process features are critical, patentably distinguishing features and it appears that the invention would perform equally well with the conventional and/or UV as discussed by the prior art reference (see col.5, lines 50-51 of Jiang et al).

Limitations of claims 22-26 are also satisfied as the above discussion.

As applied to claims 29, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select a memory device as an associated integrated circuit die, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

***Allowable Subject Matter***

6. Claims 27-28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: That the prior art fail to teach the limitations as set forth in these claims (i.e. see claims 27-28, lines 1-3) in combination with the limitation of base claim 19.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art references cited for their teaching of method for manufacturing integrated package device or the like.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (703) 305-2887. The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Minh Trinh', followed by a horizontal line.

Minh Trinh 7/22/04  
Patent Examiner Group 3729

mt